

10/538076

JC17 Rec'd PCT/PTO 09 JUN 2005

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): Terrain anticollision equipment ~~[[1]]~~ to be carried onboard an aircraft ~~[[A]]~~, comprising :

means for determining ~~at least one~~ a virtual envelope of protection of maneuver ~~[[W, C]]~~ constructed around the short term predicted trajectory of the aircraft and delimiting a protection volume around the current position and the current trajectory of the aircraft~~[[,]]~~ ;
means for detecting intrusions, into said virtual envelope or envelopes of protection of maneuver ~~[[W, C]]~~, of a representation of an envelope ~~[[MTCD]]~~ of the terrain and/or of the ground; obstacles overflown stored in a data base onboard ~~[[3]]~~ or on the ground~~[[,]]~~ ; ~~and~~ alarm means ~~[[5]]~~ triggered by the intrusion detection means ~~[[,]]~~ ;

~~characterized in that,~~ wherein after detection of a risk of ground collision, ~~[[its]]~~ the means of determining virtual envelopes of protection determine, in addition to the virtual envelope or envelopes of protection of maneuver ~~(W, C)~~, ~~at least one~~ a virtual envelope of protection of resumption of route ~~[[L]]~~, constructed around a fictitious trajectory of resumption of route,

~~in that its~~ wherein the means of intrusion detection detect the intrusions of the terrain and/or of the ground obstacles ~~[[R]]~~ at one and the same time into the virtual envelope or envelopes of protection of maneuver ~~[[W, C]]~~ and into the virtual envelope or envelopes of protection of resumption of route ~~[[L]]~~ ; and

~~in that its~~ wherein the alarm means produce an indication signaling the possibility of ending an avoidance maneuver as soon as the means of intrusion detection no longer note any intrusion of the terrain and/or of the ground obstacles ~~[[R]]~~ into the virtual envelope or envelopes of protection of resumption of route ~~[[L]]~~.

2. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein the fictitious trajectory of resumption of route is a horizontal trajectory.

3. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein the fictitious trajectory of resumption of route is a trajectory having as slope a horizontal slope if the instantaneous trajectory of the aircraft is climbing or holding level, and a slope dependent on the instantaneous trajectory of the aircraft if the aircraft is descending.

4. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein the fictitious trajectory of resumption of route is a trajectory having as slope a slope dependent on the instantaneous trajectory of the aircraft.

5. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein the fictitious trajectory of resumption of route is a trajectory having as slope a slope dependent on the trajectory of the aircraft at the moment of the detection of the risk of terrain collision.

6. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein the fictitious trajectory of resumption of route is a trajectory having as slope a slope dependent on the trajectory of the aircraft at the moment of the detection of the risk of terrain collision, if the latter was descending, and a horizontal trajectory if the latter was flying horizontally or climbing at the moment of the detection of the risk of terrain collision.

7. (currently amended): The equipment as claimed in ~~one of the preceding~~ claim[[s]] 1, ~~characterized in that~~ wherein the fictitious trajectory of resumption of route is a trajectory having as heading the instantaneous heading of the aircraft [[(A)]].

8. (currently amended): The equipment as claimed in ~~one of~~ claim[[s]] 1 to 6, ~~characterized in that~~ wherein the fictitious trajectory of resumption of route is a trajectory having as heading and slope those of the trajectory of the aircraft [[(A)]] at the moment of the detection

of the risk of terrain collision.

9. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein the limits of the virtual envelope or envelopes of protection are defined by a so-called feeler surface ~~(W, C, L)~~ the meeting of which with the representation of an envelope of the terrain and/or of the ground obstacles $[(R)]$ which is extracted from the information of the data base $[(3)]$ is regarded as an intrusion of the terrain and/or of the ground obstacles $[(R)]$ into the corresponding virtual envelope of protection.

10. (currently amended): The equipment as claimed in claim 9, ~~characterized in that~~ wherein, regardless of the instantaneous attitude of the aircraft $[(A)]$ ~~(climbing, flying level or descending)~~, the projection onto the horizontal of a feeler ~~(W or C)~~ of virtual envelope of protection of maneuver is adopted as feeler $[(L)]$ of a virtual envelope of protection of resumption of route.

11. (currently amended): The equipment as claimed in claim 9, ~~characterized in that~~ wherein, when the instantaneous attitude of the aircraft $[(A)]$ is climbing or flying level, the projection onto the horizontal of a feeler ~~(W or C)~~ of virtual envelope of protection of maneuver is adopted as feeler $[(L)]$ of a virtual envelope of protection of resumption of route.

12. (currently amended): The equipment as claimed in claim 9, ~~characterized in that~~ wherein, when the instantaneous attitude of the aircraft $[(A)]$ is descending, the projection according to an inclined plane dependent on the instantaneous descent slope of the aircraft of a feeler ~~(W or C)~~ of virtual envelope of protection of maneuver is adopted as feeler $[(L)]$ of a virtual envelope of protection of resumption of route.

13. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein, when the instantaneous attitude of the aircraft $[(A)]$ is descending, the projection along an inclined plane dependent on the instantaneous descent slope of the aircraft of a feeler ~~(W or C)~~ of virtual envelope of protection of maneuver during a certain distance or flight time

and then according to the horizontal is adopted as feeler $[(L)]$ of a virtual envelope of protection of resumption of route.

14. (currently amended): The equipment as claimed in claim 13, ~~characterized in that~~ wherein, when the terrain anticollision equipment is provided with a display screen showing a representation of the terrain layers and/or of risk with the terrain and/or the obstacles overflown, the projection, in two planes, which is adopted as feeler $[(L)]$ of a virtual envelope of protection of resumption of route is carried out in a manner consistent with that used on the screen for the representation of the terrain layers and/or of risk with the terrain and/or the obstacles overflown.

15. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein, when the aircraft $[(A)]$ was climbing or holding level at the moment of the detection of a risk of terrain collision, the projection onto the horizontal of a feeler $[(W, C)]$ of virtual envelope of protection of maneuver is adopted as feeler $[(L)]$ of a virtual envelope of protection of resumption of route.

16. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein, when the aircraft $[(A)]$ was descending at the moment of the detection of a risk of terrain collision, the projection, along an inclined plane having the descent slope of the aircraft $[(A)]$ at the moment of the detection of the risk of terrain collision, of a feeler $[(W, C)]$ of virtual envelope of protection of maneuver is adopted as feeler $[(L)]$ of a virtual envelope of protection of resumption of route.

17. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein, when the means of determination of virtual envelope of protection produce two virtual envelopes of protection of maneuver, the more distant $[(C)]$ for a prealarm of terrain collision and the closer $[(W)]$ for an alarm of terrain collision, the union of the projections onto the horizontal of the feelers $[(W, C)]$ of the two virtual envelopes of protection of maneuver is adopted as feeler $[(L)]$ of a virtual envelope of protection of resumption of route.

18. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein, when the means of determination of virtual envelope of projection produce two virtual envelopes of protection of maneuver, the more distant $[(C)]$ for a prealarm of terrain collision and the closer $[(W)]$ for an alarm of terrain collision, the union of the projections, along an inclined plane having the descent slope of the aircraft $[(A)]$ at the moment of the detection of the risk of terrain collision, of the feelers $[(W, C)]$ of the two virtual envelopes of protection of maneuver is adopted as feeler $[(L)]$ of a virtual envelope of protection of resumption of route.

19. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein, the indication signaling the possibility of ending an avoidance maneuver is given momentarily in aural and/or visual form.

20. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein, it produces an indication of holding of the avoidance maneuver in aural and/or visual form, upon the disappearance of a terrain alert and does so, until no risk of collision is detected by the virtual envelope of protection of resumption of route $[(L)]$.

21. (currently amended): The equipment as claimed in claim 1, ~~characterized in that~~ wherein the vertical distance under the aircraft at which a virtual envelope of protection of resumption of route is placed is taken equal to that used for one of the virtual envelopes of protection of maneuver.

22. (currently amended): The equipment as claimed in ~~one at least of the preceding~~ claim $[[s]]$ 21, ~~characterized in that~~ wherein, when the terrain anticollision equipment is provided with a display screen showing a representation of the terrain layers and/or of risk with the terrain and/or the obstacles overflown, the vertical distance under the aircraft at which a virtual envelope of protection of resumption of route is placed is taken consistent with that used on the screen for the representation of the terrain layers and/or of risk with the terrain and/or the obstacles overflown.